

Date: Fri, 30 Sep 94 04:30:21 PDT  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V94 #325  
To: Ham-Ant

Ham-Ant Digest                      Fri, 30 Sep 94                      Volume 94 : Issue    325

Today's Topics:

                    2m antennas: car and home?  
                    ALUM. ELEMENT RESTORAL  
                    ant. for Sony ICF-7601  
                    Antennas are prohibited ...!!!!!!  
                    Grounding and Lightning Protection  
                    SGC-230 Antenna Tuner- Does it really work?  
                    SHF omni-directional antennae  
                    Transmission Line Model

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 28 Sep 94 13:44:02 EDT  
From: psinntp!main03!landisj@uunet.uu.net  
Subject: 2m antennas: car and home?  
To: ham-ant@ucsd.edu

In article <0002E16A.fc@synergy.org>, dwv@synergy.org (Doug Vetter) writes:  
> <smp@agape.sol.net> said...

>

>>I have a 94 civic CX Hatchback, and I don't really want to drill any  
>>holes in the thing. Can anyone recommend a decent antenna setup for  
>>it that wouldn't need drilling? How can I route a cable in, from say  
>>a magmount, without drilling? Any inputs on glass mounted antennas?  
>>How do they work?

>

> I just bought a Honda Accord and installed what I have determined to be the best

> alternative to a permanently mounted antenna...a Diamond K-600M variable angle,  
> low profile trunk lip mount and a Comet B-20 (dual band, 30") antenna for trips  
> and a Comet B-10 (12") for 'round town. Although I'm using my HT with this  
> setup for now (to soon be replaced with a Kenwood TM-733 dual band mobile rig),  
> performance is outstanding. The diamond mount is well designed and won't chip  
> your paint at all (even on the underside of the trunk lip, which would lead to  
> premature rusting).

Yeah, what he said. I have the B20 also, on the Comet swivel lip mount  
(probably same thing). It's near the top of the hatch on my Mazda 626. I can't  
imagine this antenna working much better, even in the center of the roof. I  
can't do that though, have a sun roof. I use it with my 440 mobile rig, and  
sometimes with a 2M HT. I tried a MFJ mag mount dual band. Wow did that suck!  
I think I was better off with my handheld and rubber duck.

>  
> A friend of mine had two glass mounts on his CRX, one for 2M and one for 440,  
> but he determined that the glass mounts were leaking lots of RF and were a weak  
> link in an otherwise great setup, so he now uses a hard-wired mag mount with a  
> single dual bander. My reasoning for going with the diamond mount over a mag  
> mount is simply that the mag mount wouldn't have cost very much less than the  
> diamond mount and yet the mag mount would move around and most likely mar my  
> paint in some way.

>  
>>I haven't asked, but I am almost positive outside antennas will not be an  
> option. >There is an "attic" upstairs that I could perhaps put something in.  
> What sort of  
>>recommendations can you make for me?

>  
> I know of friends who have successfully used homemade J-poles for 2M packet up  
> in their attics (I have one ready to go, as soon as I get the money for the  
> TNC!). I think that pretty much any antenna that you can find to fit up in the  
> attic would work well. The little bit of extra height doesn't hurt any either!  
>

A J-pole in the attic is a good idea. I have an AR270 dual band up there that  
works well. It's shorter too. About 4 feet if I remember correctly. Hardest  
part is running cables. Just don't drill thru your kitchen ceiling :-)

> BTW, I've heard good things about that RS rig. I've even heard a few on  
> frequency in my local area and the audio quality is very good. Congrats on  
> passing the test--welcome to radio!  
>  
> 73 de N2W0L

Yes the RS is a good performer. Don't expect any rx outside the 2m band  
though.

Welcome!

Joe - AA3GN

--

Joe Landis - Systems and Network Manager - North American Drager - Telford, PA  
landisj@drager.com - Ax25: AA3GN@WA3TSW.#EPA.PA.USA.NOAM - ampr: [44.80.8.153]  
Counting the days til deer season! Politically correct sig not available.

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Date: Tue, 27 Sep 94 16:19:08 GMT

From: ihnp4.ucsd.edu!swrinde!sgiblab!sgigate.sgi.com!olivea!

charnel.ecst.csuchico.edu!yeshua.marcam.com!news.kei.com!ub!netfs.dnd.ca!dgbt!

clark.dgim.doc.ca!news@network.ucsd.edu

Subject: ALUM. ELEMENT RESTORAL

To: ham-ant@ucsd.edu

Tom Alldread (tom.alldread@kbsbbs.com) wrote:

: Greetings to All:

: I recently purchased a 15 year old 20/15 metre 9 element Wilson  
: beam with a 40 foot boom. The aluminum is pretty dull looking and I  
: wonder if anyone on this conference has any recommendations as to the  
: best way to restore the elements back to a nice glossy finish?

: Very Best Regards and 73 to All,

: Tom, VE7TMA

Hello Tom:

Please understand, I am not bloody minded when I ask the following  
question, but I hope you can educate me:-

Why would you want to do this?

I ask this question for the following reasons:

1. Even if is possible to gloss it up (I have no idea one way or the other), it is only going to revert back to dull-looking after erection.
2. Assuming it is going to be on a tower, I doubt that you would be able to tell the difference anyways. (Perhaps this for esthetics?)
3. Perhaps your objective is to ensure good contact at the joints of the antenna. If this is the case, there is a product called "NOALOX" (I think) that assists in conductivity and prevents aluminum to aluminum seizure. It is sold by Home Hardware (give me a few days and I should be

able to get you the HH product number).

In any case, let me know

73 and live better digitally

James of Rockland  
VE3XJ

-----  
Date: 27 Sep 1994 13:11:35 -0400  
From: fonorola!News.Mix.Net!Vir.com!not-for-mail@uunet.uu.net  
Subject: ant. for Sony ICF-7601  
To: ham-ant@ucsd.edu

I purchased a Sony icf-7601 (sw dual conversion multiband receiver)  
but it has no antenna input.

The included (and nifty reelable) extension antenna has, as its  
connection to the radio, a hollow cylinder which slips onto the chrome  
antenna.

Is there any way to input other antennas to my receiver, or am I stuck  
with mine because the lack of ant. inputs.

Or can I purchase other hollow-cylinders to attach an antenna?

TIA J.D.

I guess you folks never fail to Catch The Wave!

-----  
Date: Tue, 27 Sep 1994 13:50:25  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!gatech!news.Gsu.EDU!  
rpadilla.Gsu.EDU!cismrp@network.ucsd.edu  
Subject: Antennas are prohibited ...!!!!!!!  
To: ham-ant@ucsd.edu

I live in a subdivision that WILL not accept any kind of outdoors antennas. I  
need to know the best solution to install 2M antenna without going "ilegal".

/Roderick Padilla  
wp4-boc

-----  
Date: Wed, 28 Sep 1994 13:06:44 GMT

From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!gatech!wa4mei!  
ke4zv!gary@network.ucsd.edu  
Subject: Grounding and Lightning Protection  
To: ham-ant@ucsd.edu

In article <Cwt3rK.Frq@icon.rose.hp.com> greg@core.rose.hp.com (Greg Dolkas)  
writes:

>Gary Coffman (gary@ke4zv.atl.ga.us) wrote:

>:

>: -----GOOD DO THIS-----

>:

>: Bulkhead

>: ANT-----|s-----RF----EQUIPMENT

>: |x-----AC-----|

>: || ^equal ground potentials

>: ||

>: ||-----Power

>: |

>: RADIO GND--resistance-----POWER GND

>:

>: 's' is antenna suppressor, 'x' is power suppressor, both mounted to

>: bulkhead

>:

>

>Ok, let me restate this in terms of physical things I have/need...

>

>Let's assume that my house was built to code, and has the 3rd wire ground

>attached to a power ground at the service entry (ufer ground, right?).

It's unlikely to be a Ufer ground (that's a ground using extensive rebar in a concrete slab). The power ground is almost certainly a #8 wire run to the cold water pipes and/or to a driven rod (called a "made" ground in the trade). It's unlikely to present a low impedance to RF (and lightning \*is\* RF).

>Way over on the other side of my house is the "shack", complete with a wall  
>plug. Into that \*one\* wall plug I run a cord over to a "power suppressor"  
>which is mounted on the bulkhead, and then plug my equipment into the  
>other side of the suppressor via extension cords and power strips. The  
>bulkhead is also where my antenna suppressors are mounted, and it is connected  
>to my proverbial 8' stake in the ground via something wide and flat.  
>The ground lugs on my radios are also connected to this same bulkhead via  
>something wide and flat.

Yeah, you've got all that right. Try to have a better ground than just a single driven rod though. Contact area with soil is what counts. Even wire buried only a few inches is fine to use \*in addition\* to at least one driven rod. For best results, ground contact should be below the

frost line for your region.

>The one question remaining is - what is a power suppressor? I don't recall  
>seeing such a thing at the local hardware store, and I presume you aren't  
>talking about those "surge protected" power strips everyone has.

Some of those surge protector strips are better than nothing, but some of them are down right dangerous in a \*direct\* lightning strike. If you open one up and it has coils in it in addition to MOVs, it can be hazardous in a direct strike (though it'll offer marginally better protection from ordinary surges induced by nearby strikes). What you want is a service entrance protector. Polyphaser sells a great one for \$600, but that's a little rich even for me to use at home. Delta Arrestors of Big Spring Texas sells \*water well\* pump protectors that work fine, and cost around \$25. These units use silicon carbide as the active element. Home Depot sometimes carries them, and farm supply stores often carry them as well.

Mount a metal outlet box on the bulkhead (a quad box is easiest to work with), and mount the arrestor in one of the box knockouts. Wire it to the hot lead, neutral, and box ground. Note: these things are designed to \*explode\* out the end opposite the knockout threads when hit with a very heavy direct strike. Make sure that part of the arrestor is pointing in a safe direction. I've never had one start a fire, but the explosion can be rather violent and I wouldn't want it pointing toward people.

MOVs explode in a strike too, but they vaporize completely in typical sizes used in surge protectors. They won't provide enough protection. The plasma from the Delta will continue to carry the strike current until the bolt decays, and you'll certainly know you've had a strike and need to replace the arrestor from the mess, unlike the MOV where you won't know unless you open the surge strip and can't find the MOV. Adding MOVs across the line won't hurt anything, and can clip little transients that won't trigger the big Delta. The Delta is for catastrophe protection, not for keeping little spikes out of your equipment.

The fancy Polyphaser unit uses special heavy gas discharge tubes in a NEMA box. It'll handle huge strikes without damage or mess, and can catch the little transients that can wreck solid state devices too. Of course you \*pay\* for that convenience. It's the only way to go in a commercial installation.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		emory!kd4nc!ke4zv!gary
534 Shannon Way		Guaranteed!		gary@ke4zv.atl.ga.us
Lawrenceville, GA 30244				

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Date: Tue, 27 Sep 94 16:07:30 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!swrinde!sgiblab!sgigate.sgi.com!  
olivea!charnel.ecst.csuchico.edu!yeshua.marcam.com!news.kei.com!ub!netfs.dnd.ca!  
dgbt!clark.dgim.doc.ca!news@@.  
Subject: SGC-230 Antenna Tuner- Does it really work?  
To: ham-ant@ucsd.edu

Herb Rosenberg (herbr@netcom.com) wrote:

: I am interested in hearing from hams that have used the SGC - 230 antenna  
: tuner for HF operations in a home. I know that this tuner is very  
: popular on boats, and I have heard some people claim to get great results  
: with these things in a house as well. I understand that it will not work  
: as well as a beam and a tower, but unfortunately I am currently stuck  
: with putting up a low profile antenna for HF. I had been considering  
: maybe a horizontal loop or G5RV type antenna, but there are a couple  
: of guys there that are claiming that the SRC tuner with a random length  
: wire is the best.

: I would appreciate hearing from anyone out there that has had first hand  
: experience with an antenna configuration like this.

: Thanks and 73's

: Herb - KG6OK

: --  
: herbr@netcom.com

Hello Herb:

I used one of these boxes quite successfully when I was living in an apartment. I had access to the roof, so that made the job quite a bit easier. I homebrewed a 4:1 balun. This was connected to the output of the tuner and then I had a short piece of 450 ohm balanced feedline feeding a dipole that was 40 metres long. I had no complaints.

Now that I live in a house, I just put up a tower and I am in the process of erecting the antennas. One of my configurations will be with the tuner and an 80 foot piece of wire, to act as a backup.

The SGC literature shows one configuration as a dipole, one leg to the output the other to the ground lug of the box. I'm a little sceptical as how effective it would be, but that is part of amateur radio - try something and see what happens.

In any case, I am sure you will be happy with the box.

73 for now and live better digitally!

James of Rockland  
VE3XJ

-----  
Date: 28 Sep 1994 12:35:20 GMT  
From: elroy.jpl.nasa.gov!usc!math.ohio-state.edu!jussieu.fr!univ-lyon1.fr!  
elendir@ames.arpa  
Subject: SHF omni-directional antennae  
To: ham-ant@ucsd.edu

Hi...

This is just an unrelated question, but it has been discussed for a while  
on the Paris UHF repeater.

Is there any kind of omnidirectional antenna usable over 1.2 GHz ?

Just curious,  
Vincent.

--  
F1RCS - Worldwide Friendship through Amateur Radio  
ENST, Ecole Nationale Supérieure des Telecommunications, Paris

-----  
Date: 28 Sep 1994 15:05:44 GMT  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!math.ohio-  
state.edu!magnus.acs.ohio-state.edu!csn!col.hp.com!news.dtc.hp.com!  
hpscit.sc.hp.com!rkarlqu@network.ucsd.edu  
Subject: Transmission Line Model  
To: ham-ant@ucsd.edu

In article <1994Sep27.234507.170@midway.uchicago.edu>,  
mark christopher haase <haas@midway.uchicago.edu> wrote:

>Dear Readers,

>

>I am interested in formulating a mathematical model that governs the  
>propagation of signals down a twisted pair line. I believe that the  
>model of the line should be something like

> (i),(i+1) = junctions  
> Gnd. Gnd. L = inductor, R=resistor  
> | | C1, C2 = capacitors.



```

>          C1          C1      The figure then extends indefinitely.
>          |          |      I would like to formulate the
>(1)-----L---R--(i)---L---R-(i+1)---etc    differential equations in terms of
>          |          |      V1(i), V2(i)'s = voltages at
>          C2          C2      the junctions i in lines (1) and (2),
>          |          |      and the currents I1(i) I2(i) through
>(2)-----L---R--(i)---L---R---o-----etc    the various components. One important
>          |          |      factor that I would like to take into
>          C1          C1      consideration is that of mutual
>          |          |      inductance - a back EMF set up in
>          Gnd.        Gnd.    line 1 caused by a change in current
>                                in line 2 (and in 2 from 1).
>As I am sure that this has been done any number of times by so many clever
>engineers and physicists, could someone either tell me an easy way to set
>up the differential equations (w.r.t. d/dt) or point me to a good source
>which discusses this topic ad nauseum? Thank you very much for your
>time!
>  Mark Haase
>  Department of Mathematics
>  The University of Chicago
>

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Why do you want to go to the trouble of modeling the line this way (with incremental circuit elements) when any text on the subject gives simple closed form equations using hyperbolic trig functions that describe the behavior of the line?

Secondly, if you insist on doing this, you need to add a G (conductance) in parallel with the C's, and you need to add mutual coupling between the inductances.

Finally, you show a model of shielded twisted pair. This is most conveniently analyzed using "even" (common-mode) and "odd" (differential-mode) modes in superposition. Again, this is described in many texts on microwave coupler design.

Rick Karlquist N6RK  
 rkarlqu@scd.hp.com

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End of Ham-Ant Digest V94 #325  
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